

IN THE CLAIMS

✓ Please cancel claims 62, 99 and 103-104, without prejudice.

Please substitute claims 48, 51, 53, 54, 60, 61, 65, 68, 100, 102 and 105-106 with rewritten claims 48, 51, 53, 54, 60, 61, 65, 68, 100, 102 and 105-106 as follows:*

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48. (Three Times Amended) An isolated DNA molecule encoding an antisense-RNA complementary to a transcript of a nucleic acid molecule encoding a protein which is present in plant cells in starch granule-bound form as well as in soluble form and that is involved in the phosphorylation of starch when expressed in plants and/or that increases the phosphorylation of glycogen when expressed in *E. coli*, said nucleic acid molecule selected from the group consisting of:

(a) a nucleic acid molecule comprising a nucleotide sequence that encodes a protein having the amino acid sequence of SEQ ID NO: 2;

(b) a nucleic acid molecule comprising the coding region of the nucleotide sequence of SEQ ID NO: 1;

(c) a nucleic acid molecule that hybridizes to the nucleic acid molecule of (a) or (b) under stringent conditions, wherein the nucleic acid molecule encodes a polypeptide that is present in plant cells in starch granule-bound form as well as soluble form and that is involved in the phosphorylation of starch when expressed in plants and/or that increases the phosphorylation of glycogen when expressed in *E. coli*;

* Applicants enclose a copy of claims 48, 51, 53, 54, 60, 61, 65, 68, 100, 102 and 105-106, marked up pursuant to 37 C.F.R. § 1.121(c)(1)(ii) to show the amendments made.

(d) a nucleic acid molecule the sequence of which is degenerate as a result of the genetic code to a nucleic acid molecule of (a), (b) or (c); and

(e) a fragment or allelic variant of a nucleic acid molecule of (a), (b), (c), or (d), wherein the fragment or allelic variant encodes a polypeptide that is present in plant cells in starch granule-bound form as well as in soluble form and that is involved in the phosphorylation of starch when expressed in plants and/or that increases the phosphorylation of glycogen when expressed in *E. coli*,

wherein said antisense-RNA is capable of inhibiting the expression of nucleic acid molecules encoding said protein when expressed in a plant cell.

51. (Three Times Amended) A vector comprising the DNA molecule according to claim 48.

53. (Three Times Amended) A host cell comprising the DNA molecule according to claim 48 or comprising a vector comprising said DNA molecule.

54. (Three Times Amended) A transgenic plant cell comprising the DNA molecule according to claim 48, wherein said DNA molecule is operably linked to regulatory elements ensuring transcription in a plant cell.

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60. (Twice Amended) An RNA molecule obtainable by transcription of the nucleic acid molecule according to claim 48.

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61. (Three Times Amended) A method for producing a transgenic plant cell synthesizing a modified starch comprising the step of introducing the DNA molecule of claim 48 into the cell, thereby reducing in the cell the amount of a protein which is present in the plant cell in starch granule-bound form as well as in soluble form and that is involved in the phosphorylation of starch when expressed in plants and/or that increases the phosphorylation of glycogen when expressed in *E. coli*, said protein encoded by a nucleic acid molecule selected from the group consisting of:

(a) a nucleic acid molecule encoding a protein with the amino-acid sequence indicated in SEQ ID NO: 2;

(b) a nucleic acid molecule comprising the coding region of the nucleotide sequence indicated in SEQ ID NO: 1;

(c) a nucleic acid molecule hybridizing to a nucleic acid molecule of (a) or (b) under stringent conditions;

(d) a nucleic acid molecule the sequence of which is degenerate as a result of the genetic code to a nucleic acid molecule of (a) or (b); and

(e) a fragment, derivative or allelic variant of a nucleic acid molecule of (a), (b), (c), or (d), wherein the fragment, derivative or allelic variant encodes a polypeptide that is present in plant cells in starch granule-bound form as well as in soluble form and that is involved in the phosphorylation of starch when expressed in plants and/or that increases the phosphorylation of glycogen when expressed in *E. coli*;

wherein said reduction of the amount of said protein is caused by an antisense effect and results in the plant cell producing a modified starch.

65. (Three Times Amended) The method of claim 61, wherein the enzyme activity of at least one further enzyme involved in the starch biosynthesis and/or modification is reduced.

68. (Three Times Amended) A plant cell obtainable by the method of claim 61.

100. (Amended) The DNA molecule of claim 48, wherein the DNA molecule is more than 100 basepairs.

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102. (Amended) An isolated DNA molecule encoding an antisense-RNA complementary to a transcript of a nucleic acid molecule encoding a protein which is present in plant cells in starch granule-bound form as well as in soluble form and that is involved in the phosphorylation of starch when expressed in plants and/or that increases the phosphorylation of glycogen when expressed in *E. coli*, said nucleic acid molecule selected from the group consisting of:

- (a) a nucleic acid molecule comprising a nucleotide sequence that encodes a protein having the amino acid sequence of SEQ ID NO: 2;
- (b) a nucleic acid molecule comprising the coding region of the nucleotide sequence of SEQ ID NO: 1;
- (c) a nucleic acid molecule that has more than 80% sequence identity to the nucleic acid molecule of (a) or (b);
- (d) a nucleic acid molecule the sequence of which is degenerate as a result of the genetic code to a nucleic acid molecule of (a), (b) or (c); and
- (e) a fragment or allelic variant of a nucleic acid molecule of (a), (b), (c), or (d), wherein the fragment or allelic variant encodes a polypeptide that is present in plant cells in starch granule-bound form as well as in soluble form and that is involved in the phosphorylation of starch when expressed in plants and/or that increases the phosphorylation of glycogen when expressed in *E. coli*,

wherein said antisense-RNA is capable of inhibiting the expression of nucleic acid molecules encoding said protein when expressed in a plant cell.

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105. (Amended) The DNA molecule of claim 102, wherein the nucleic acid molecule of (c) has more than 90% sequence identity to the nucleic acid molecule of (a) or (b).

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106. (Amended) The DNA molecule of claim 105, wherein the nucleic acid molecule of (c) has at least 95% complementarity to the nucleic acid molecule of (a) or (b).